

JUN 08 2009

PATENT  
Atty. ref. P03096US2A  
(DP003b0dus)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

YAN et al.

Appl no.: 10/579,954

Filed: 22 May 2006

For: FUNCTIONALIZED POLYMER WITH  
LINKING GROUP

Group art unit: 1714

Examiner: Boyle, R.C.

Confirmation no.: 9285

**DECLARATION**  
**37 C.F.R. § 1.132**

David F. Lawson declares as follows:

1. I was granted a bachelor of arts degree (chemistry) from Lewis University in 1967 and a doctor of philosophy degree (organic chemistry) from Iowa State University in 1971.
2. I was employed by subsidiaries or predecessors in interest of the assignee of the present application from 1970-2004. After retiring, I was a visiting scientist at The University of Akron Institute of Polymer Science in 2005. During that time, and since, I have acted as a consultant for a number of entities in the rubber and plastics industries.
3. I am named as an inventor in over 75 United States letters patent.
4. I am a joint inventor of the inventions defined by the claims of PCT/US2005/038017, of which the present application is a national stage entry, as well as those claims of the present application which were pending at the time that the U.S. Patent and Trademark Office (PTO) issued the official action mailed March 9, 2009 (hereinafter "the 3/9 Action").
5. I understand claim 1 of the present application to be directed to a method of making an amine-functionalized polymer in which a living (carbanionic) polymer is reacted with a particular type of cyclic compound to provide an intermediate polymer and

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then allowing an amine to bond to the Intermediate polymer. The Intermediate polymer is identified as "living," which I understand to mean "not quenched".

6. I understand that each of claims 2-3, 9-10 and 21-25 depends, either directly or indirectly, from claim 1. As a group, these claims hereinafter are referred to "method of making claims."
7. I have read the 3/9 Action and understand that it rejects the method of making claims as being fully taught by U.S. Patent No. 5,811,479 (hereinafter "US'479 "). The rejection of claim 1 in the 3/9 Action is a reiteration of a rejection presented in an official action mailed October 28, 2008 (hereinafter "the 10/28 Action"), which I also have reviewed. I understand the relevant portion of the 10/28 Action to read as follows:
  1. Claim 1 discloses a method of making a polymer comprising reacting a living polymer with a cyclic siloxane to give an intermediate, then reacting the intermediate with an amine with an active hydrogen atom. Labauze teaches reacting a living polymer with a cyclic polysiloxane (column 4, lines 62-66; column 8, lines 46-56). A polymer with a siloxane block is reacted with a primary amine (column 2, lines 30-36; column 3, lines 1-16; column 10, lines 29-35).
8. I have read US'479 and believe that I understand all of that which it teaches.
9. US'479 does not teach reaction between an organosilane (which can include a primary amine functionality) and a "polymer with a siloxane block" before the latter is protonated. Instead, US'479 teaches that the organosilane is not introduced until the polymer is compounded; see lines 23-60 of column 8. The compounding stage occurs after the polymer has been reacted with a proton donor in each of the four functionalization methods set forth in columns 4-5; see lines 34-44 of col. 4 (method 1), lines 17-19 of col. 5 (method 2), lines 30-32 of col. 5 (method 3), and lines 37-40 of col. 5 (method 4). The presence of a proton donor always results in termination of a living polymer, rendering the polymer no longer living.
10. The examples from US'479 are in accord with the general teaching of columns 4-5. The three copolymers used in Examples 2-4 were synthesized according to the process described in Example 1. Only after the quenched polymers were recovered, which entailed reaction with a proton donor (e.g., methanol) and/or steam stripping, were they incorporated into compounds. The compound in Example 1 did not include an organosilane, while those of Examples 2-4 did.
11. I understand all the method of making claims to require that an amine compound be allowed to "chemically bond to said Intermediate functionalized living polymer" and

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that this reaction occur in the same reaction medium in which the intermediate functionalized living polymer was prepared.

12. US'479 teaches addition of the organosilane to a non-active polymer. Further, US'479 teaches that this addition occurs in other than the medium in which the living polymer was functionalized.
13. For at least the foregoing reasons, I do not believe that US'479 can be said to anticipate the method of making claims.

Further, declarant saith naught.

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true. These statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under § 1001 of Title 18 of the United States Code. I understand that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

May 5, 2009  
Date

David F. Lawson  
David F. Lawson